



UN-HABITAT

Climate Leader Lunch Hangout



Presented by: Lea Ranalder, Climate Change and Urban Environment Team

Date: 16 May 2024

This session will cover



- Status of the energy transition
- Who is “responsible” for the climate crisis?
- Who can solve it?
- One actor: cities?
- How can we communicate better about the opportunities for renewables?
- Why we need youth and opportunities

Status of the Energy transition

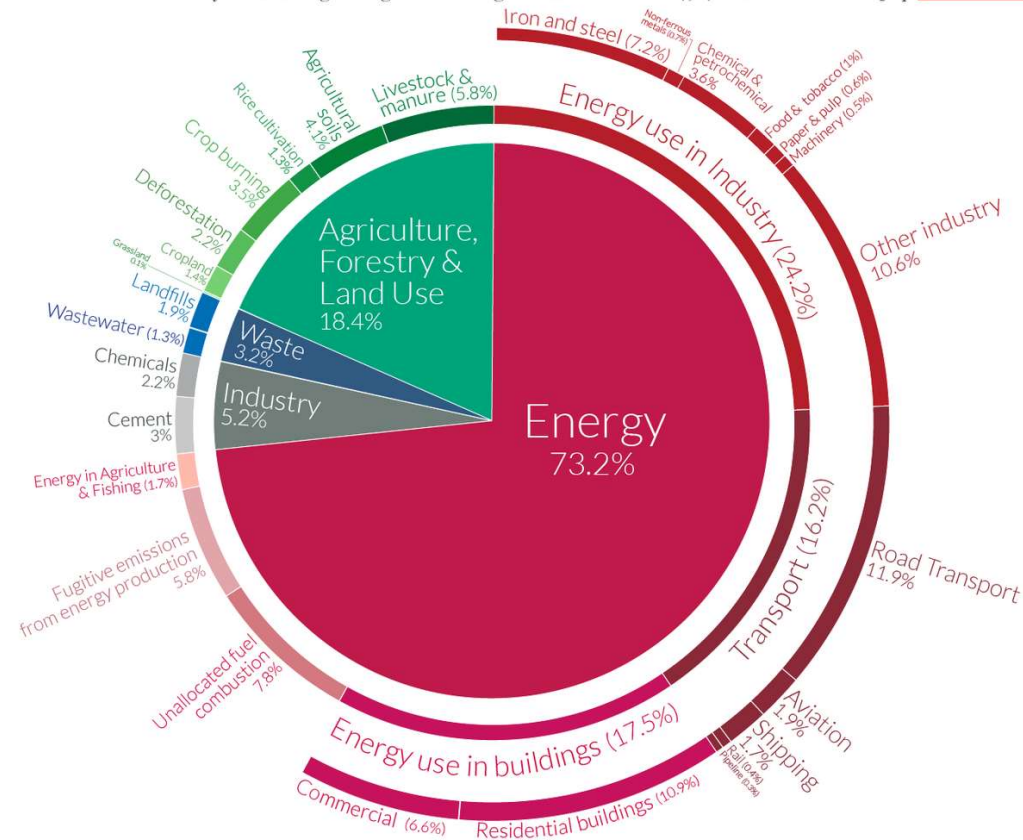
1

Which sector contributes the most emissions?

Global greenhouse gas emissions by sector

This is shown for the year 2016 – global greenhouse gas emissions were 49.4 billion tonnes CO₂eq.

Our World
in Data

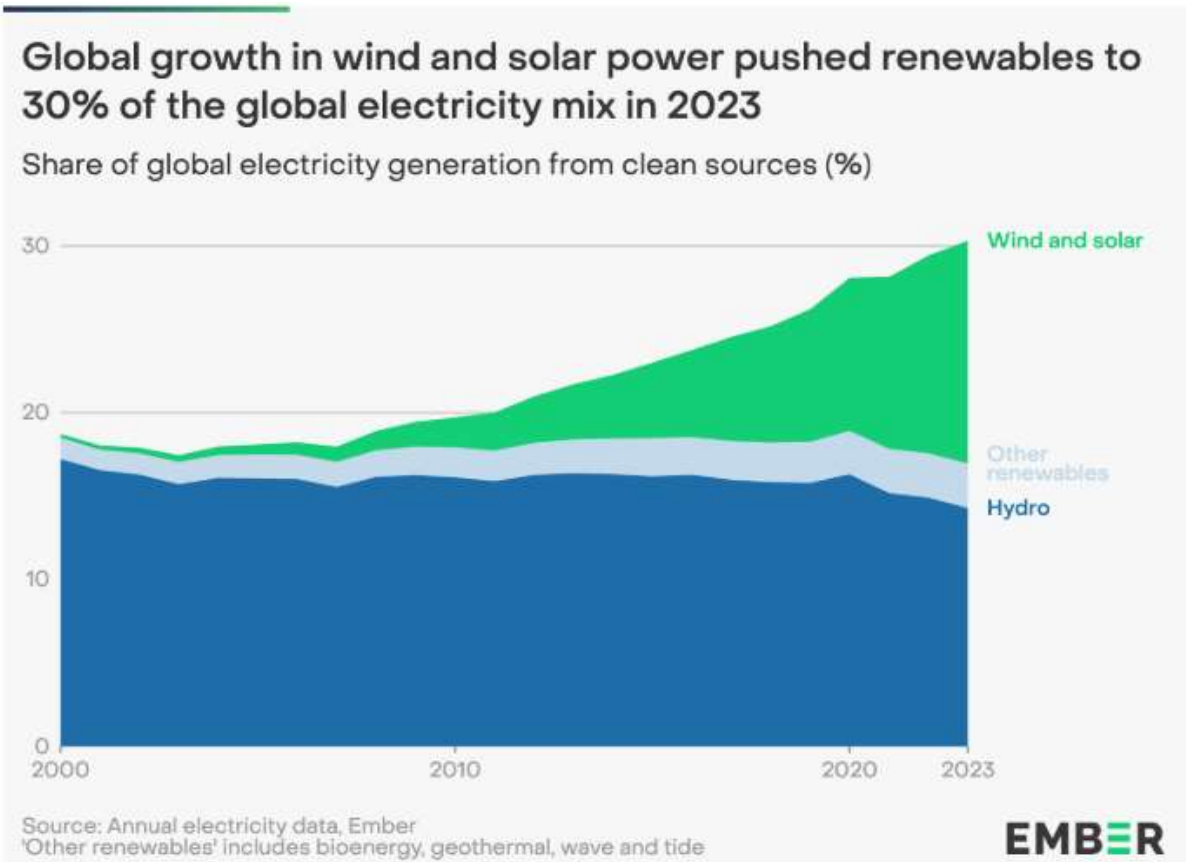


OurWorldinData.org – Research and data to make progress against the world's largest problems.

Source: Climate Watch, the World Resources Institute (2020).

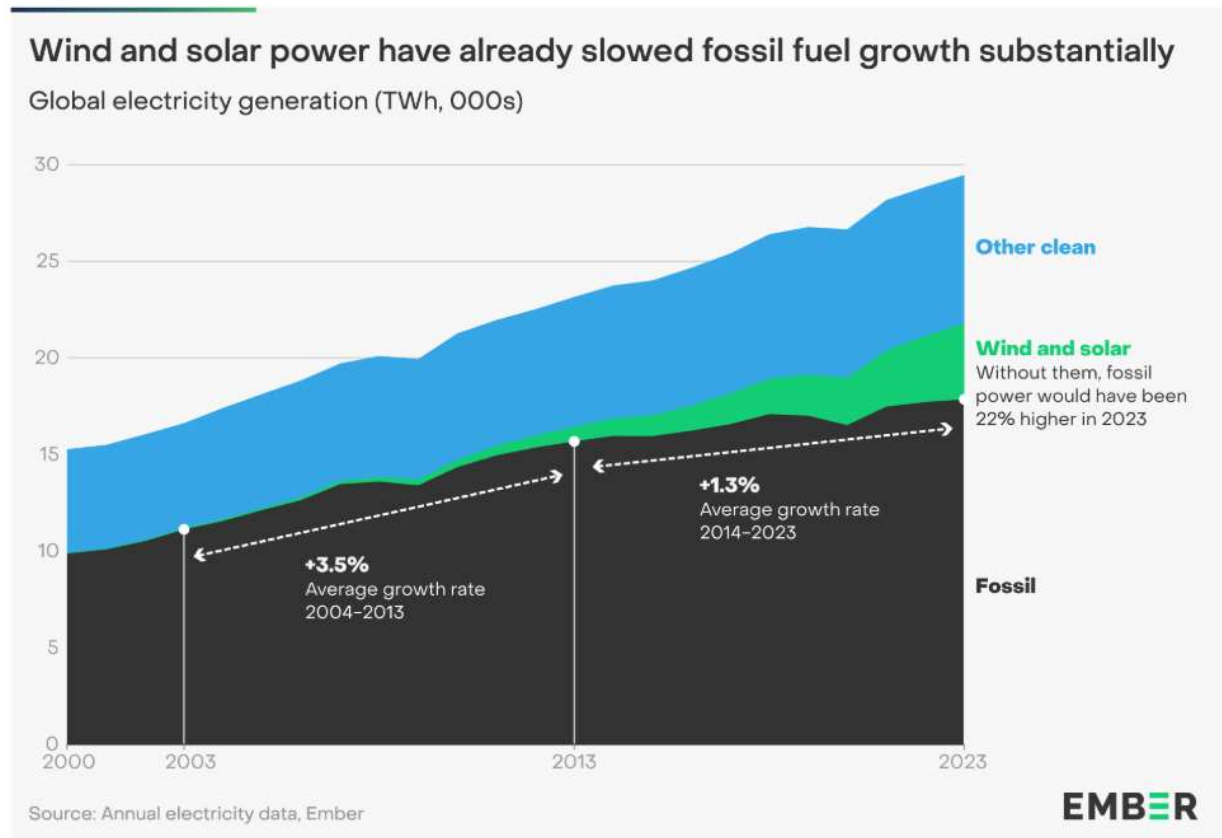
Licensed under CC-BY by the author Hannah Ritchie (2020).

Solar PV and wind as renewables king and queen



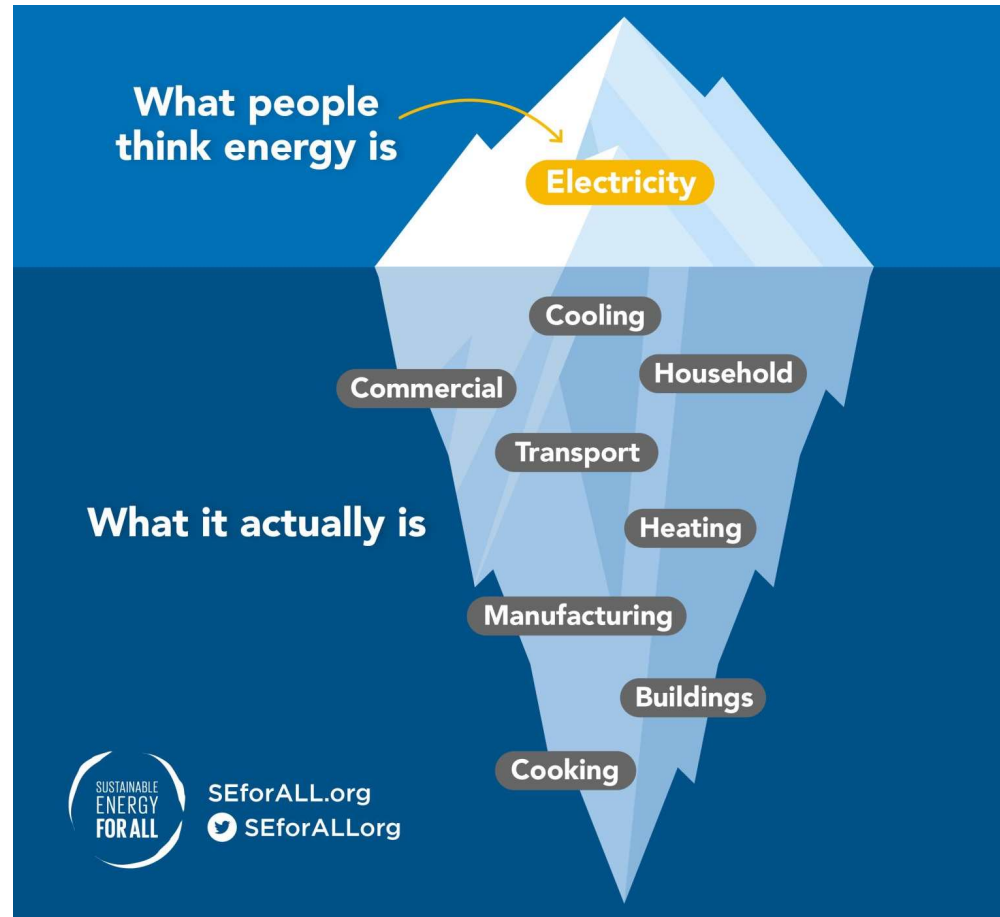
**Renewables in
power sector
reaching 30%**

Fossil fuels slowing down in power sector

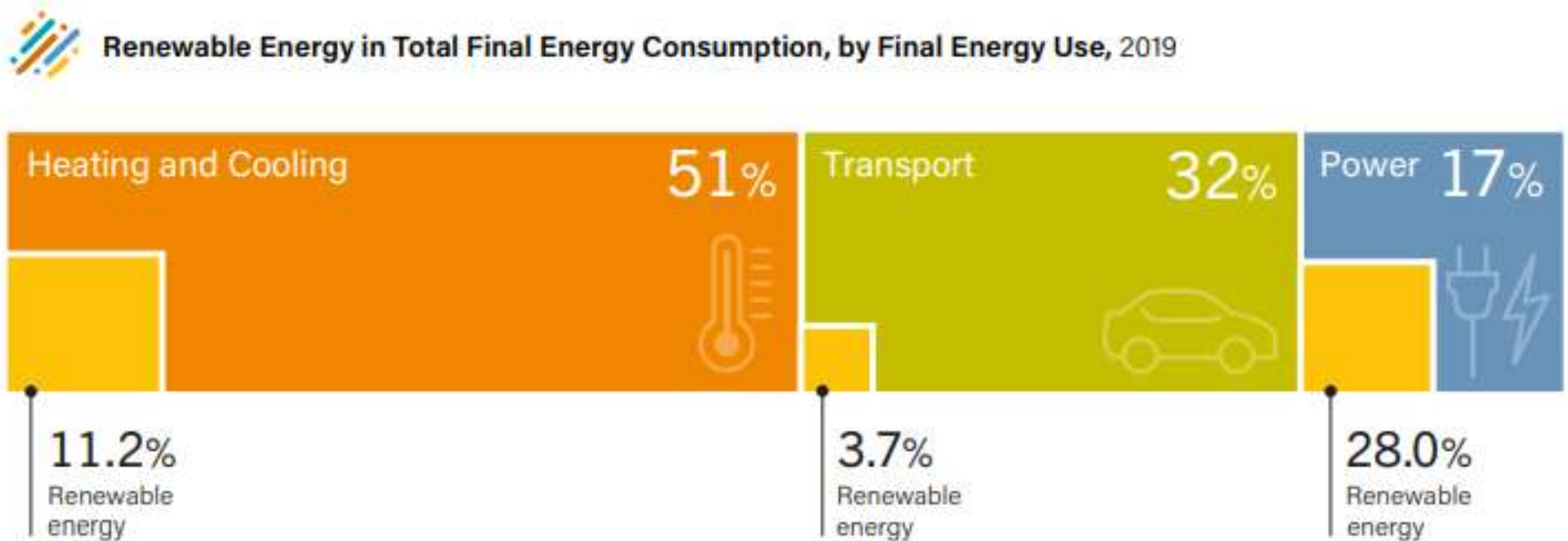


Slowing
growth of
fossil fuels but
not halting

Energy vs electricity



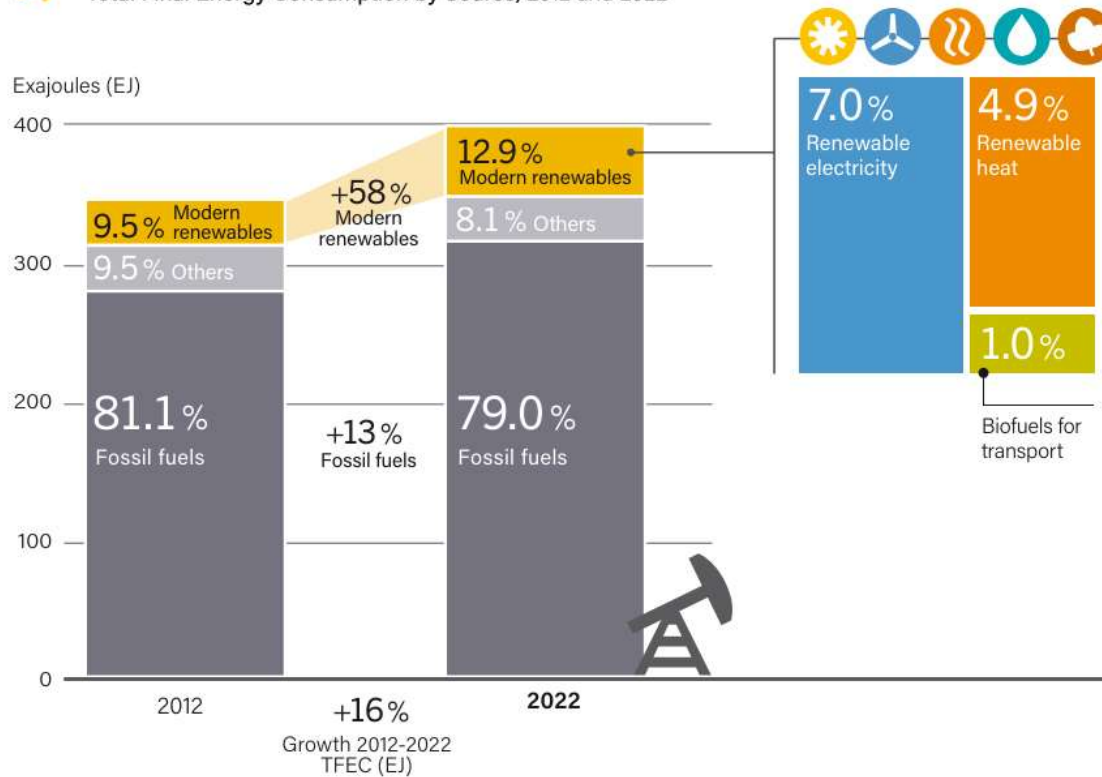
Energy sector deep-dive



Where are we today?



FIGURE 1.
Total Final Energy Consumption by Source, 2012 and 2022



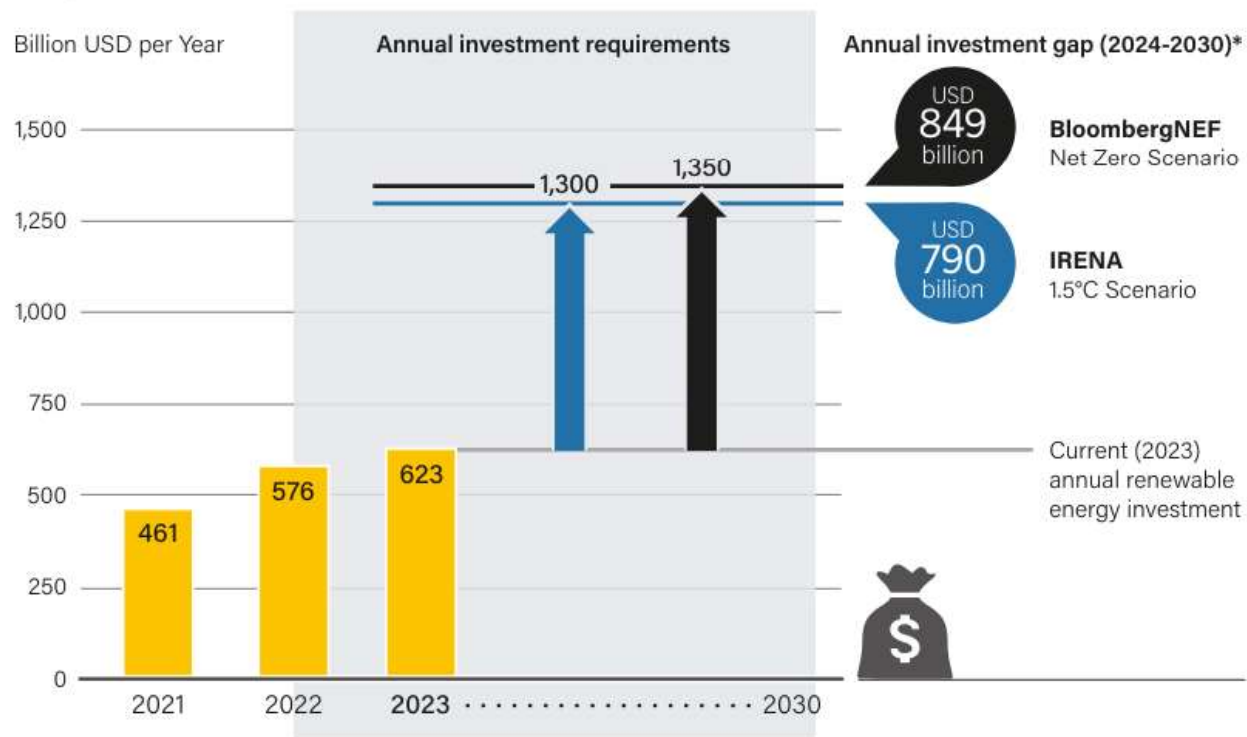
Source: IEA, REN21. See endnote 94 for this module.

We are
burning more
fossil fuels
than ever

Where we need to be?



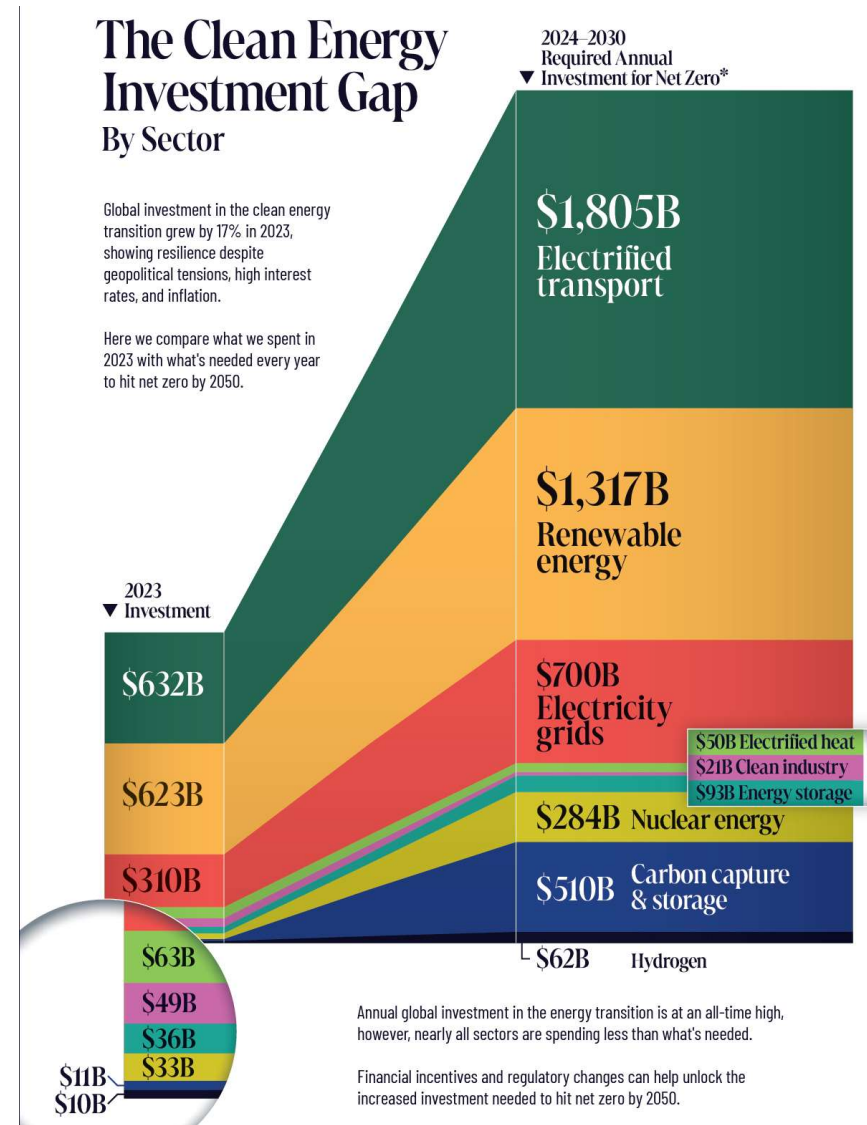
FIGURE 12.
Range of Annual Renewable Energy Investment Needed in Climate Change Mitigation Scenarios,
Compared to Recent Investments



**Annual
investments
need to more
than double**

Where we need to be?

Global investments in the clean energy transition grew by 17% in 2023



Who is responsible for the climate crisis?

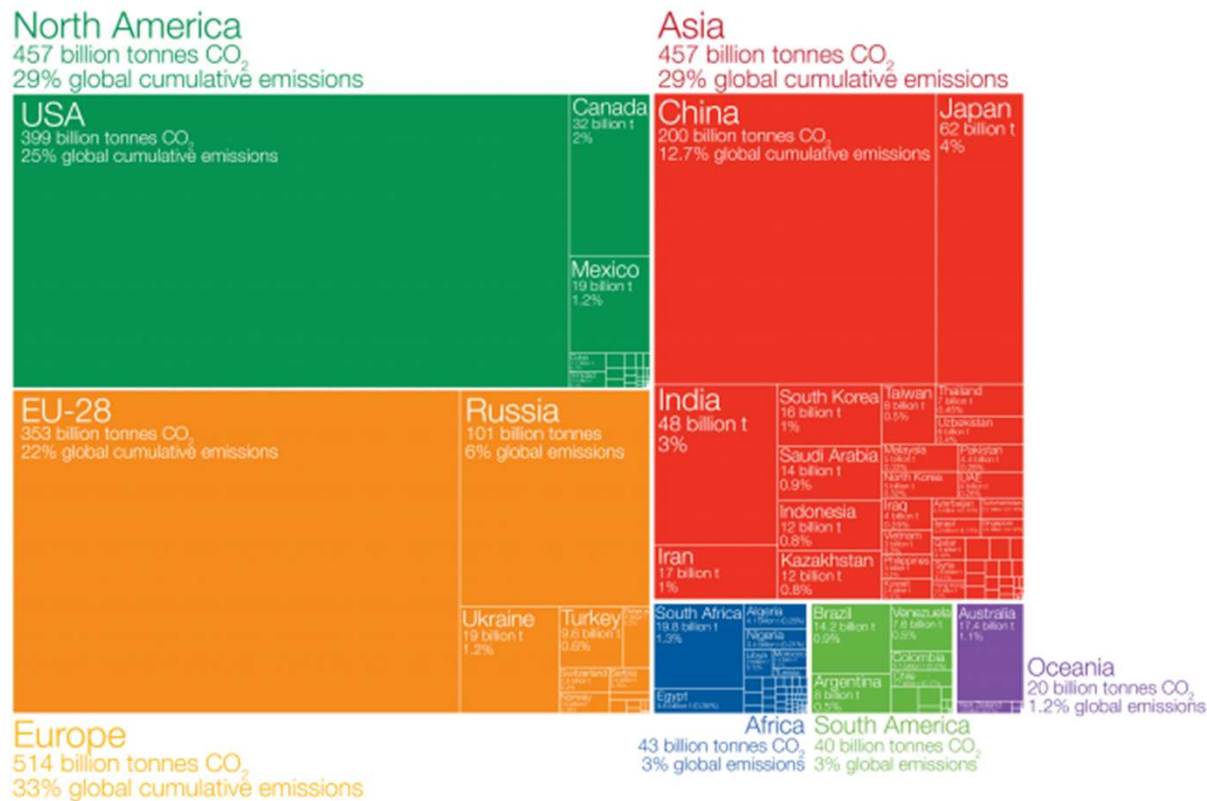
2

Who is responsible for climate change?

Who has contributed most to global CO₂ emissions?

Our World
in Data

Cumulative carbon dioxide (CO₂) emissions over the period from 1751 to 2017. Figures are based on production-based emissions which measure CO₂ produced domestically from fossil fuel combustion and cement, and do not correct for emissions embedded in trade (i.e. consumption-based). Emissions from international travel are not included.



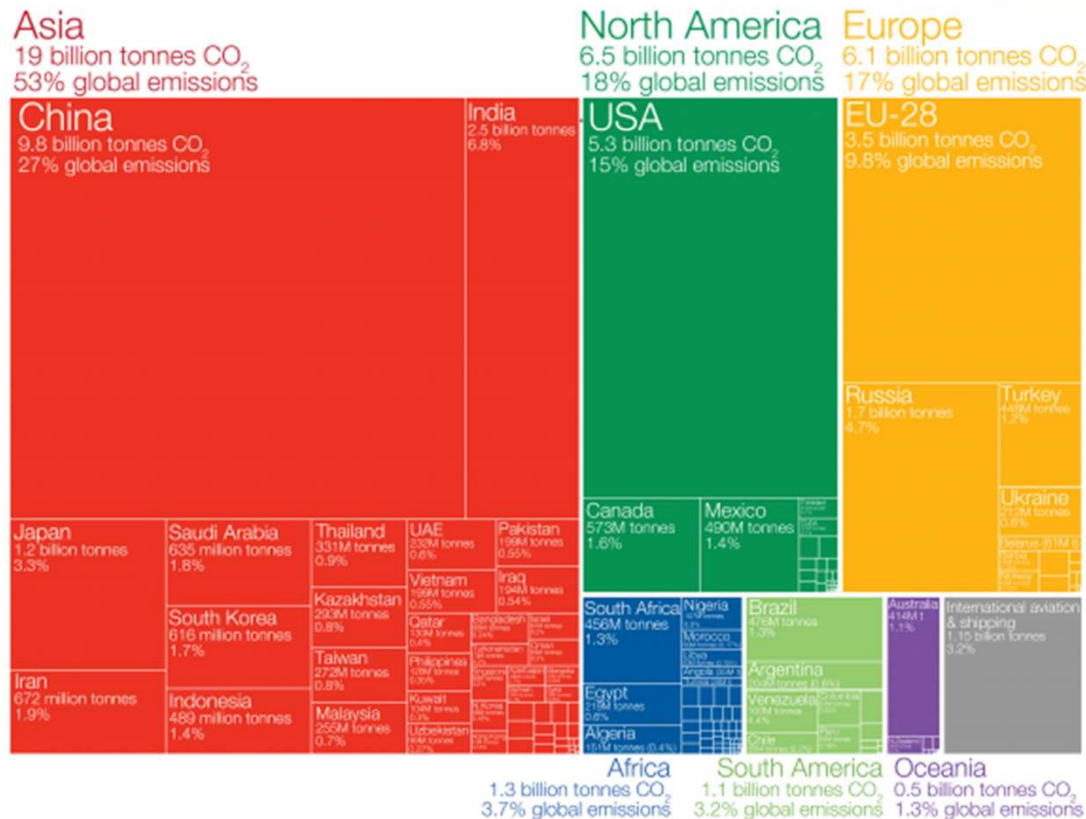
Historic
emissions

Who is responsible for climate change?

Who emits the most CO₂?

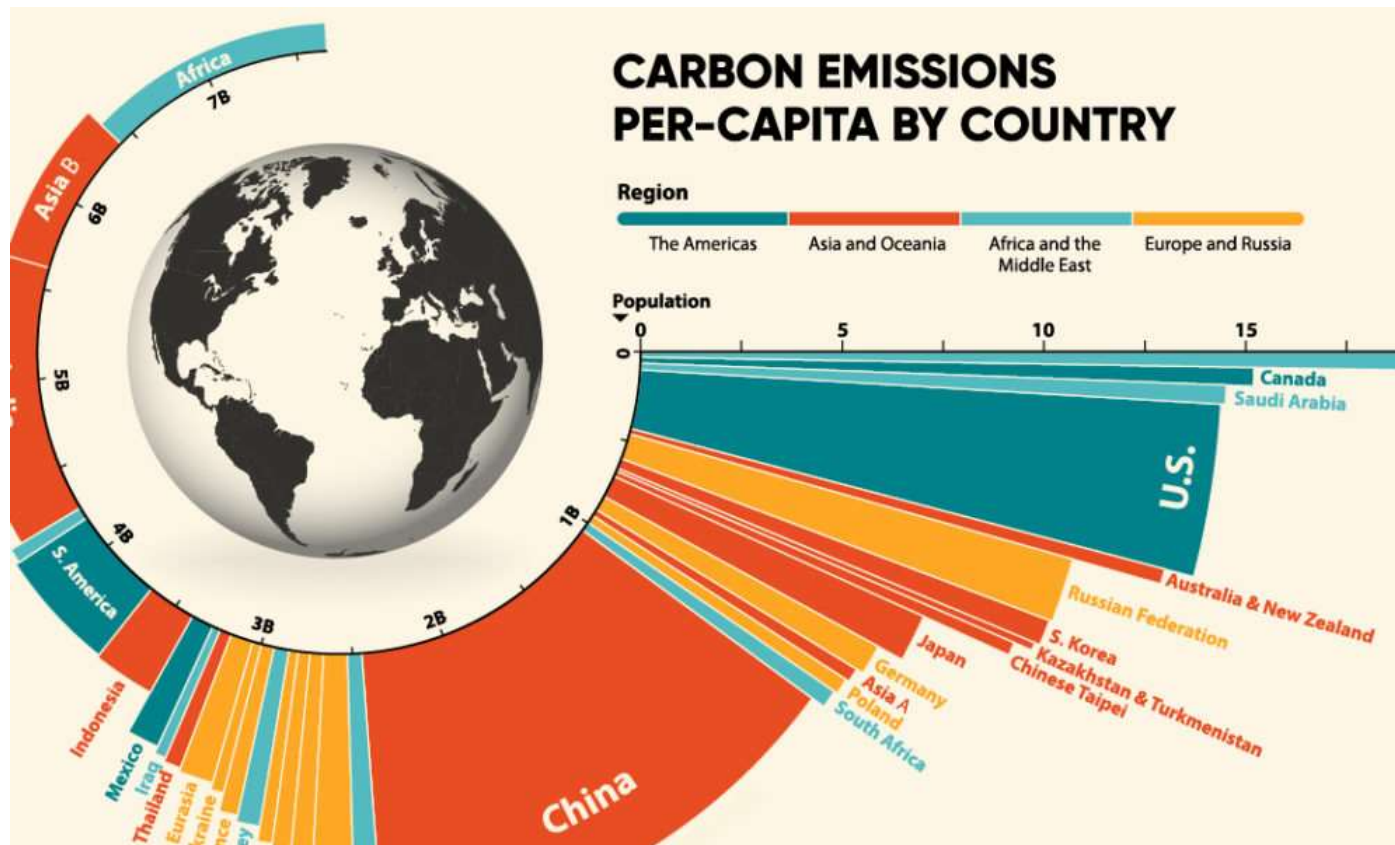
Global carbon dioxide (CO₂) emissions were 36.2 billion tonnes in 2017.

Our World
in Data



Annual
emissions

Who is responsible for climate change?

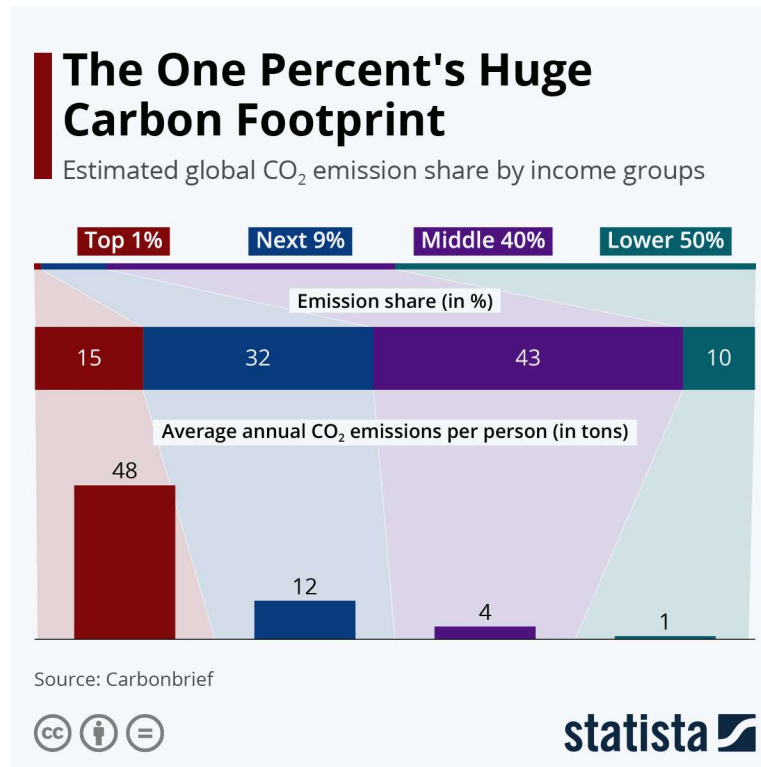


Per capita
emission

Who is responsible for climate change?



The world's top 1% of emitters produce over 1 000 times more CO₂ than the bottom 1%



A billionaire emits a million times more greenhouse gases than the average person

10 solutions to mitigate climate change

1.  **RETIRE**
coal plants

6.  **INCREASE** public transport,
biking and walking

2.  **INVEST** in clean
energy & efficiency

7.  **DECARBONIZE**
aviation and shipping

3.  **RETROFIT** and
DECARBONIZE buildings

8.  **HALT** deforestation &
RESTORE degraded lands

4.  **DECARBONIZE** cement,
steel & plastics

9.  **REDUCE** food loss and
waste and **IMPROVE**
agricultural practices

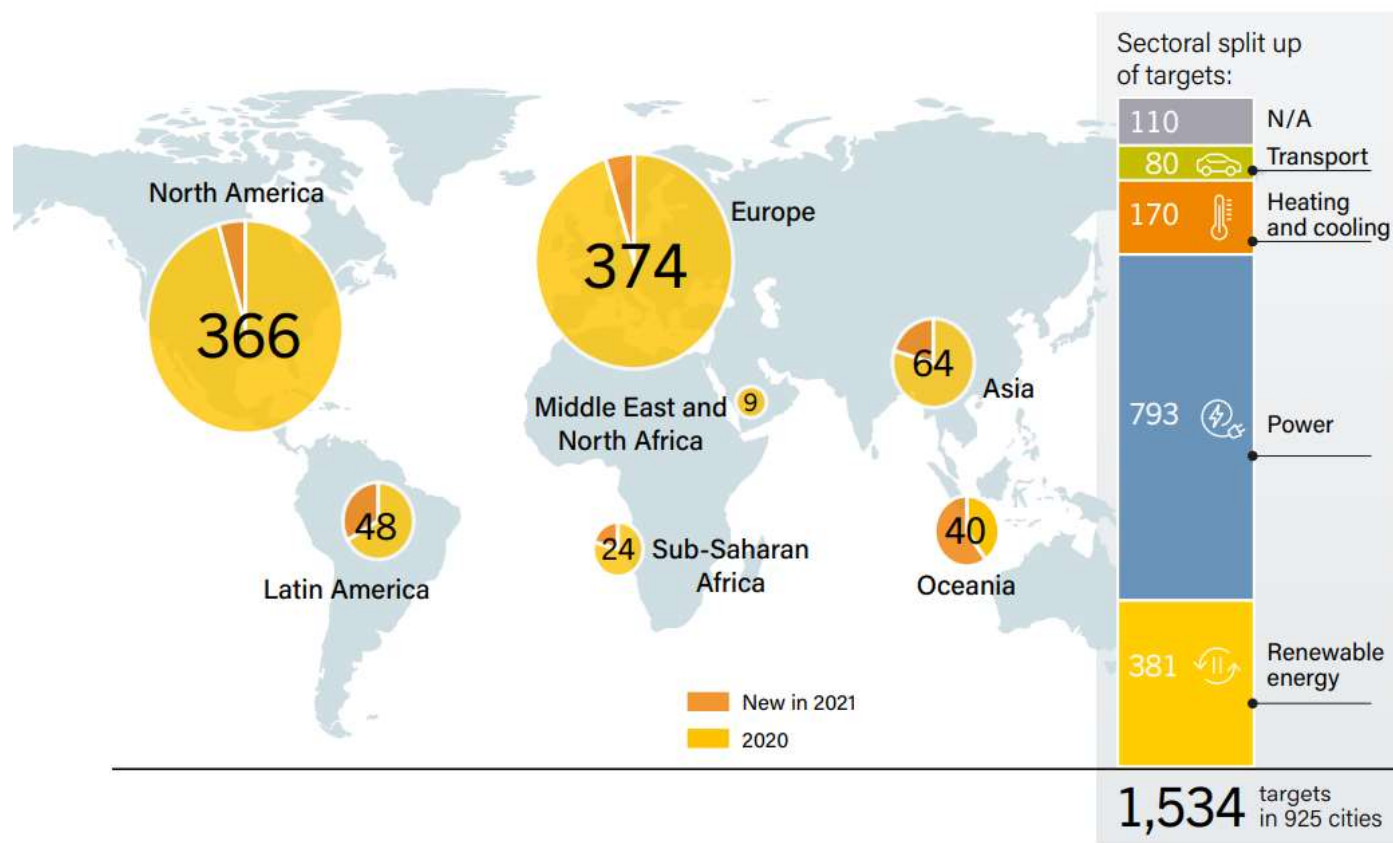
5.  **SHIFT** to
electric vehicles

10.  **EAT** more plants &
less meat

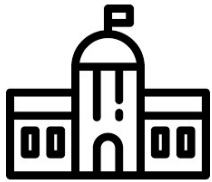
Deep-dive: opportunities for cities

3

Renewable energy targets in cities



Cities using own assets and procurement



Cities **lead by example:** including sustainability and renewables in purchasing decisions

Installing renewable energy for the city's own operations

Using purchasing agreements

Retrofitting existing houses as part of urban regeneration efforts

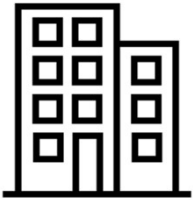
Shape municipal (energy) infrastructure

EXAMPLE: Helsinki, Finland



Innovative
mechanism to
overhaul district
heating

Cities setting policies for buildings



Passing mandates requiring minimum performance on energy and renewables – especially for new buildings

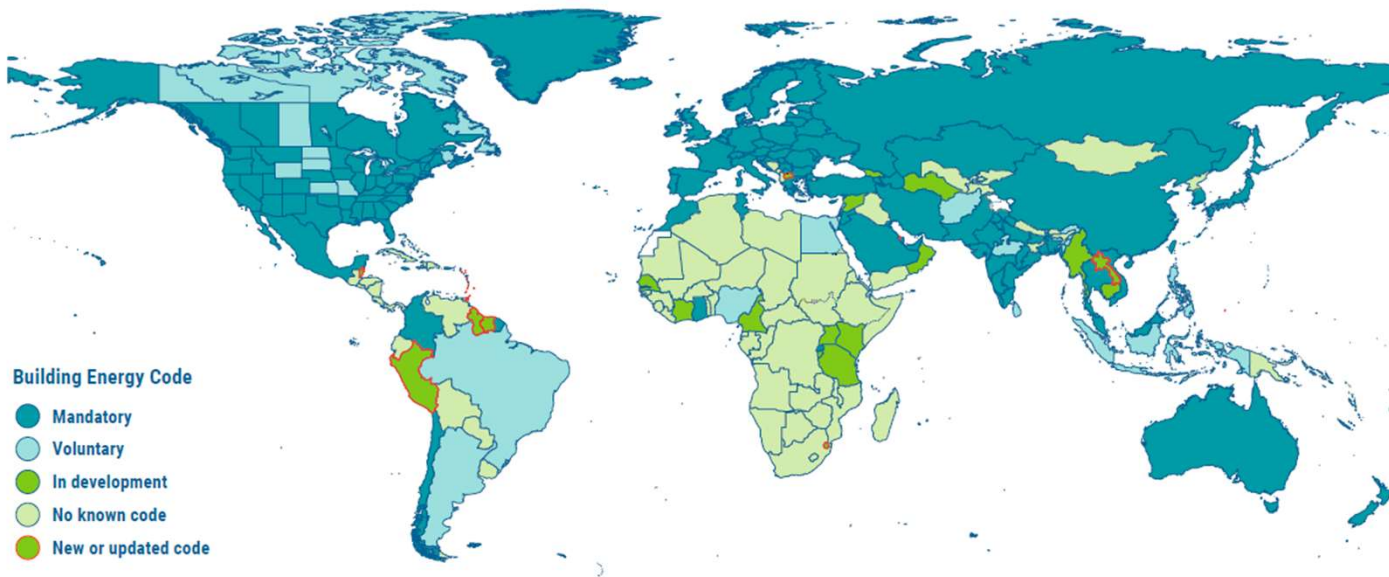
Building codes and mandates (typically for new buildings)

Providing **fiscal and financial incentives** for retrofitting, energy efficiency measures and renewables

Banning or restricting the use of oil, gas, coal

STATUS: Energy building codes are not advancing

Figure 5. Building energy codes by country/state



Source: Global ABC/ IEA



Only 43 countries have mandatory building energy codes

EXAMPLE: Berlin, Germany



Solar mandate for
new residential
buildings and for
renovations

EXAMPLE: Berkeley, USA



First city to prohibit
gas infrastructure

Cities decarbonizing transport

Decarbonising
municipal fleets and
public transport

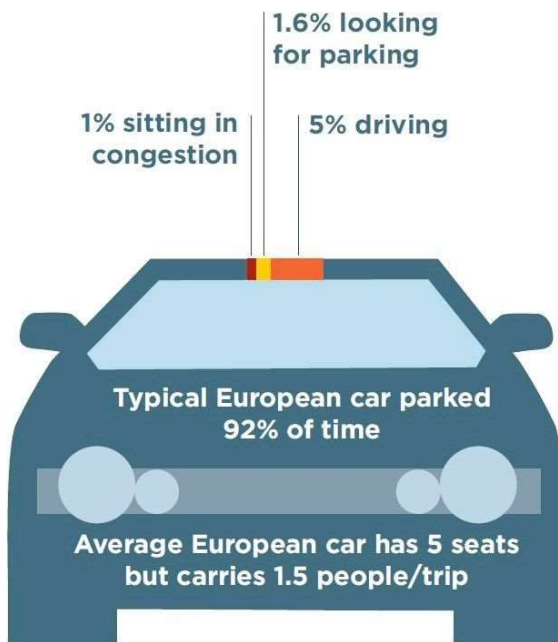
Mandates requiring EV
chargers in new
buildings

Fiscal and financial
incentives for purchase
of monthly public
transport, new electric
vehicle

Establishing low-
emission zones

Improving walking and
biking infrastructure

How much does a car actually move?



From the report "Growth Within: A circular economy vision for a competitive Europe" by the Ellen MacArthur Foundation

Pkw-Stellplätze sind größer als viele Kinderzimmer

Pkw-Stellplatz:
12,5 m²

Kinderzimmer:
ab 10 m²

Einzelbüro:
ab 8 m²



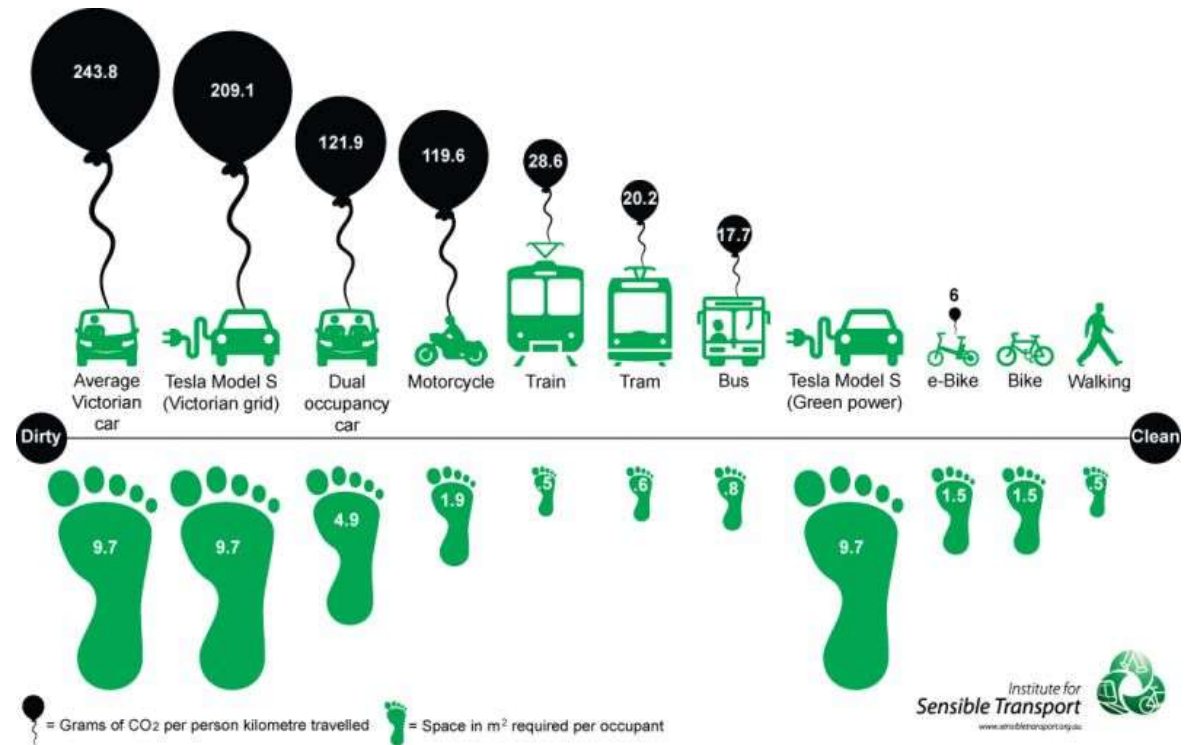
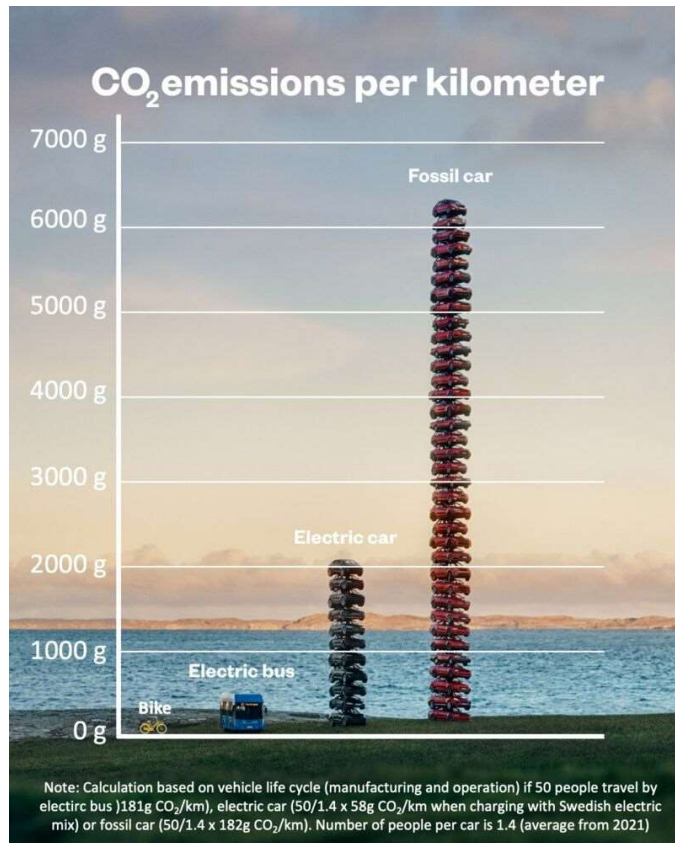
Quellen: Agora Verkehrswende, VCD

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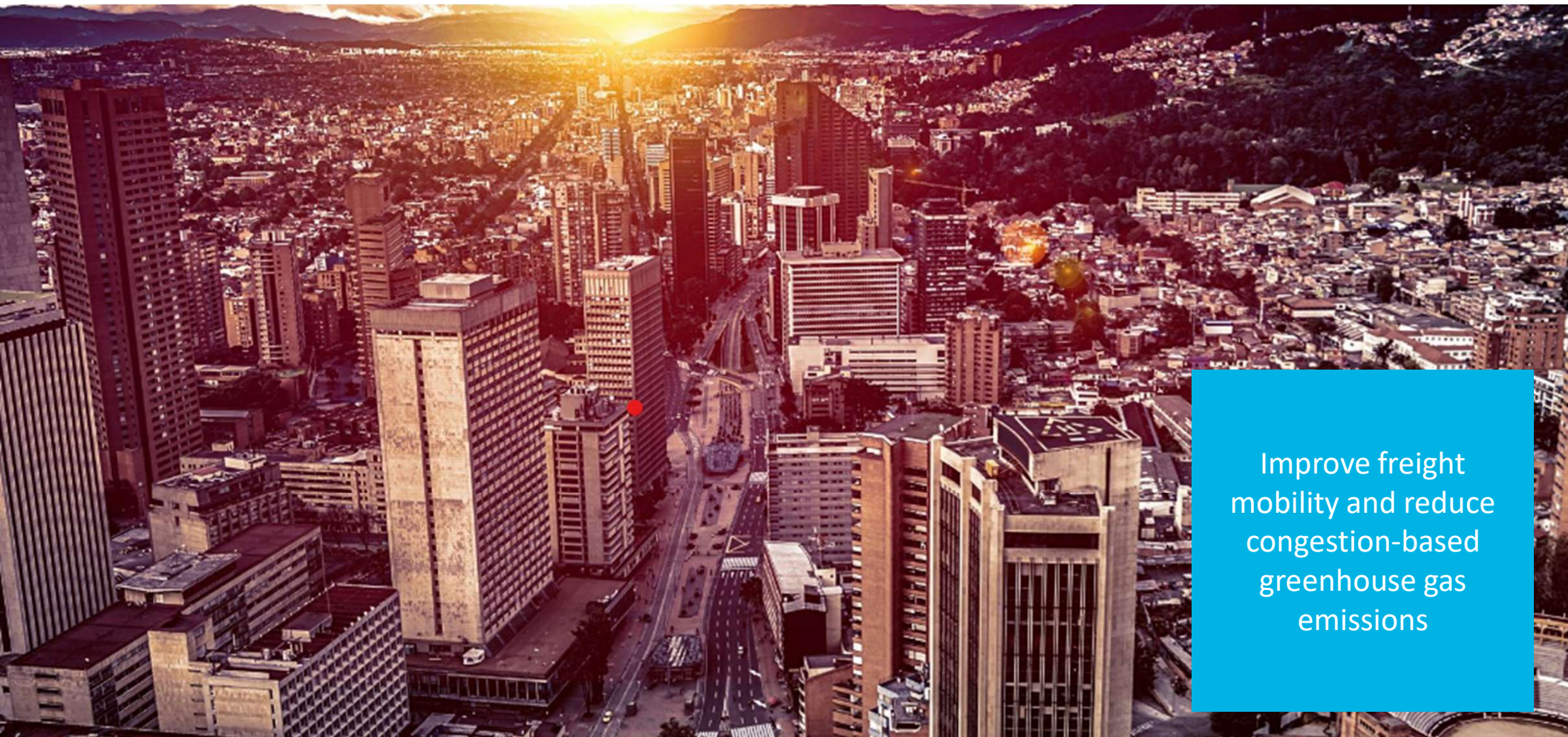



Baden-Württemberg
MINISTERIUM FÜR VERKEHR

CO2 emissions in transport

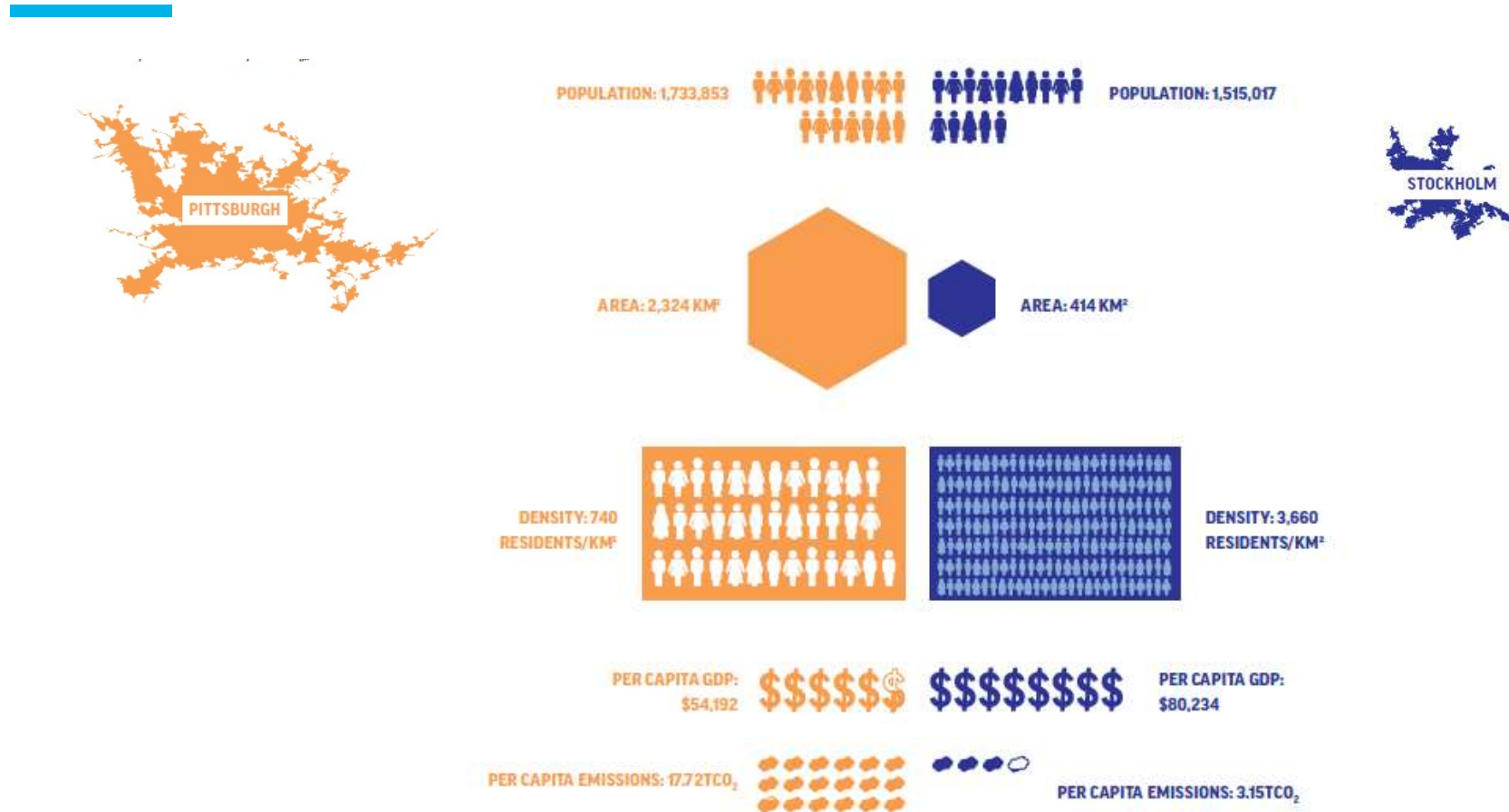


EXAMPLE: Bogota, Colombia



Improve freight
mobility and reduce
congestion-based
greenhouse gas
emissions

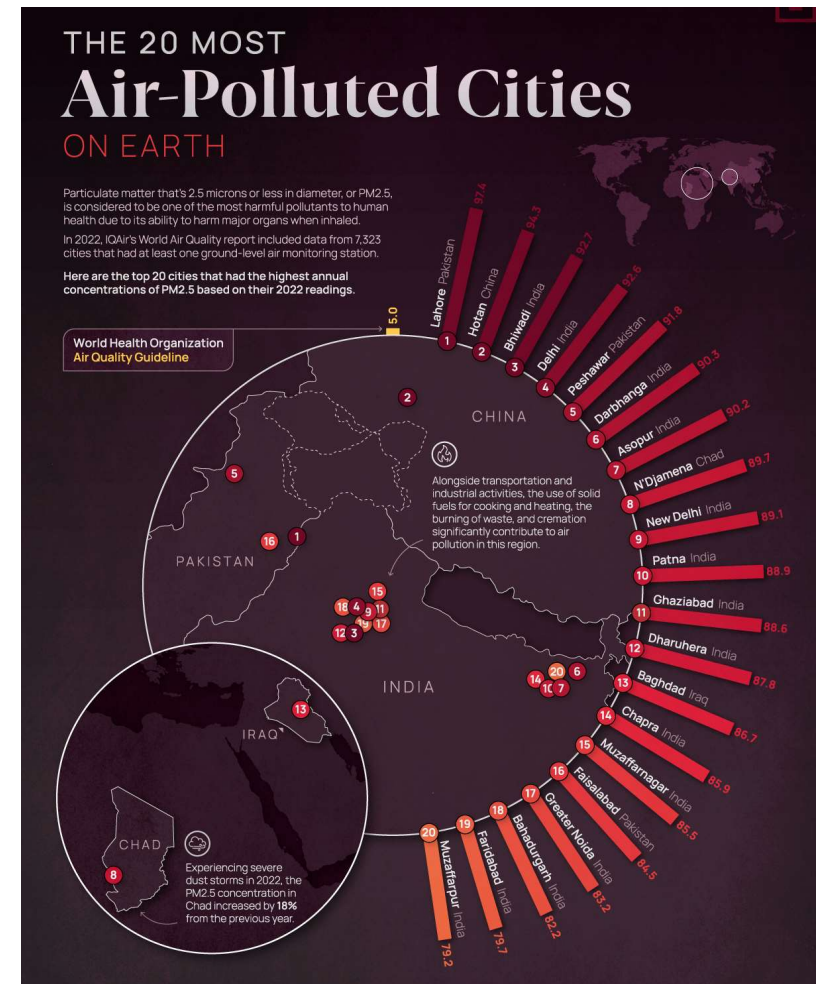
EXAMPLE: urban sprawl Pittsburgh vs Stockholm



How can we communicate better about renewables?

4

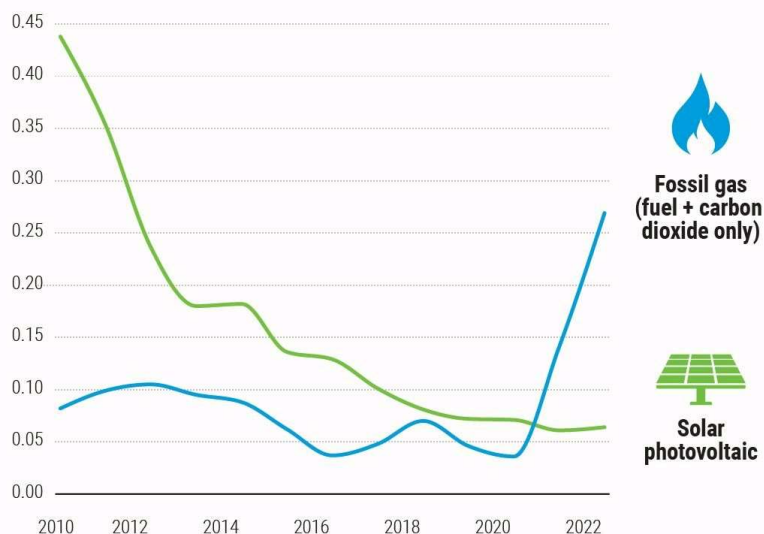
Co-benefits: combatting air pollution



Co-benefits: controlling municipal costs

Cost comparison: Solar photovoltaic versus fossil gas in Europe

(Dollars per kWh)



Source: UNCTAD calculations, based on data from the International Renewable Energy Agency.



Renewable Power Costs in 2022

The period 2010 to 2022 represents a seismic shift in the balance of competitiveness between renewables and fossil fuel

Fossil gas-fired power generation costs in Europe increased

3x

compared to 2010

2010-2022, the global weighted average cost of electricity fell by

89%

Solar Photovoltaics (PV)

69%

Onshore Wind

69%

CSP

59%

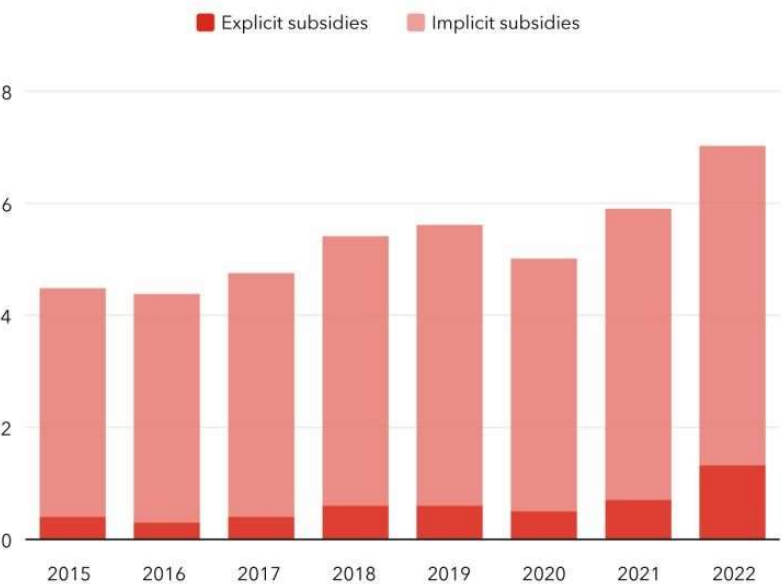
Offshore Wind

The fossil fuel price crisis accelerated the competitiveness of renewable power

Reducing fossil fuel subsidies

Fossil fuel subsidies topped \$7 trillion last year

(total fossil fuel subsidies, trillions of USD)



Source: IMF staff calculations.
Note: Figures from 2019 onwards use projections for fuel use. Explicit subsidies: undercharging for supply costs. Implicit subsidies: undercharging for environmental costs and forgone consumption taxes, after accounting for preexisting fuel taxes and carbon pricing.

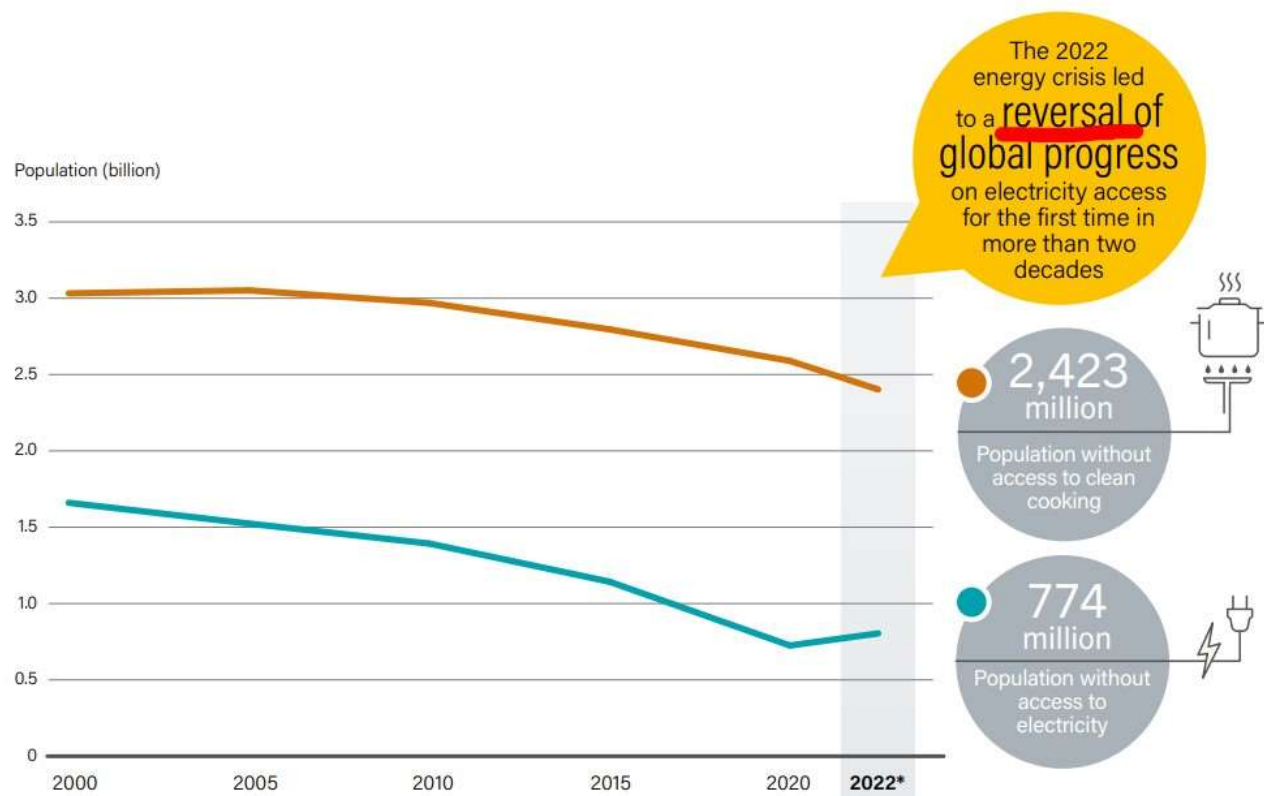
IMF

G20 poured more than \$1tn into fossil fuel subsidies despite Cop26 pledges - report

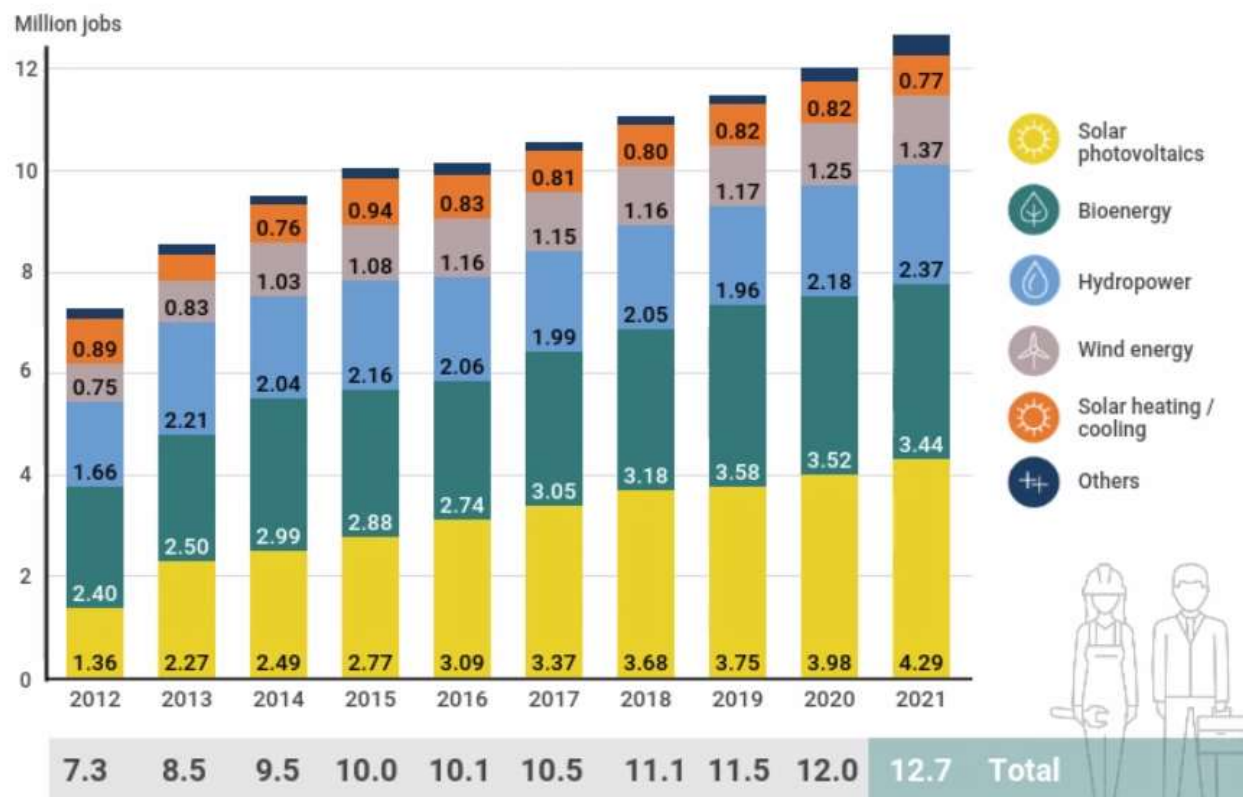
Public money still flowing into industry despite agreement to phase out 'inefficient' subsidies, thinktank says



Co-benefits: addressing vulnerability



Co-benefits: local job creation



Source: IRENA Jobs database.

Evolution of global renewable energy employment by technology, 2012-2021

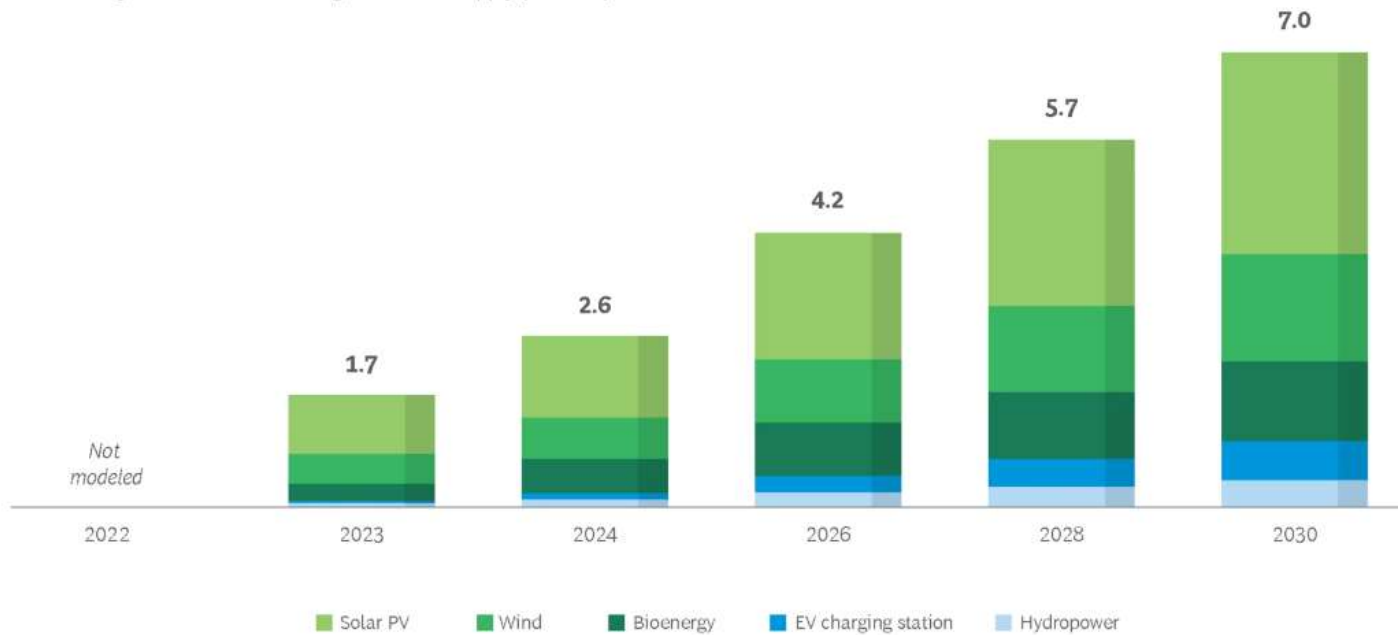
Opportunities for youth in the Energy transition

5

Skill gap is widening

Solar Is the Biggest Contributor to the 7 Million Person Skills Gap

Number of jobs where demand is greater than supply (millions)



Skill gap is widening

Home / Press releases /

Shortage of trained heat pump installers could set back net zero

07 July 2022 | In [A sustainable future](#)

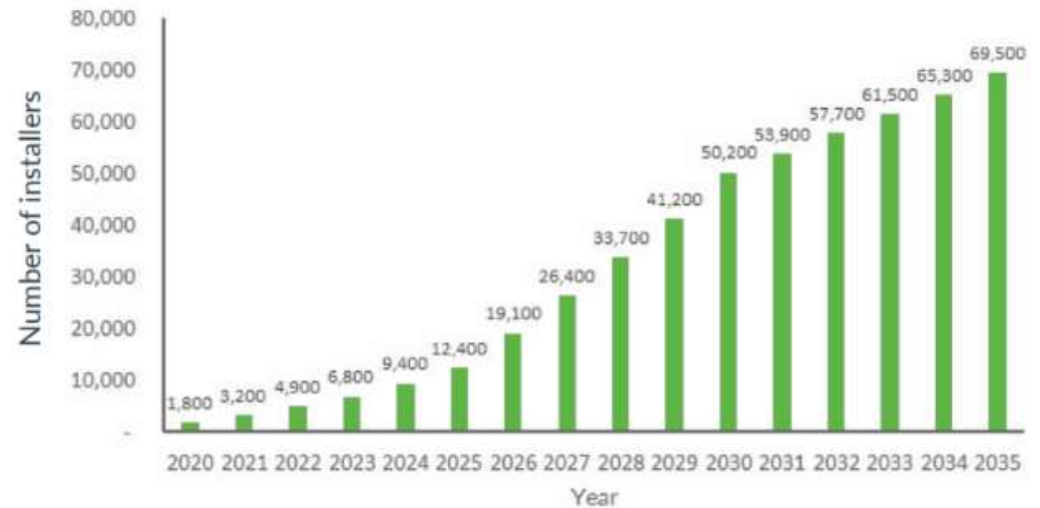


Figure 1: Potential number of heat pump installers needed each year, up to 2035 (HPA, 2020)

3,000 trained heat pump engineers in the UK, but at least 27,000 will be needed in the next six years, requiring increases of 4,000-6,000 per year.

Any questions?

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